

# SERVICE MANUAL

DATSUN PICK-UP  
MODEL 620 SERIES  
CHASSIS & BODY



**NISSAN MOTOR CO., LTD.**  
TOKYO, JAPAN

## SECTION RA

### REAR AXLE & REAR SUSPENSION

RA

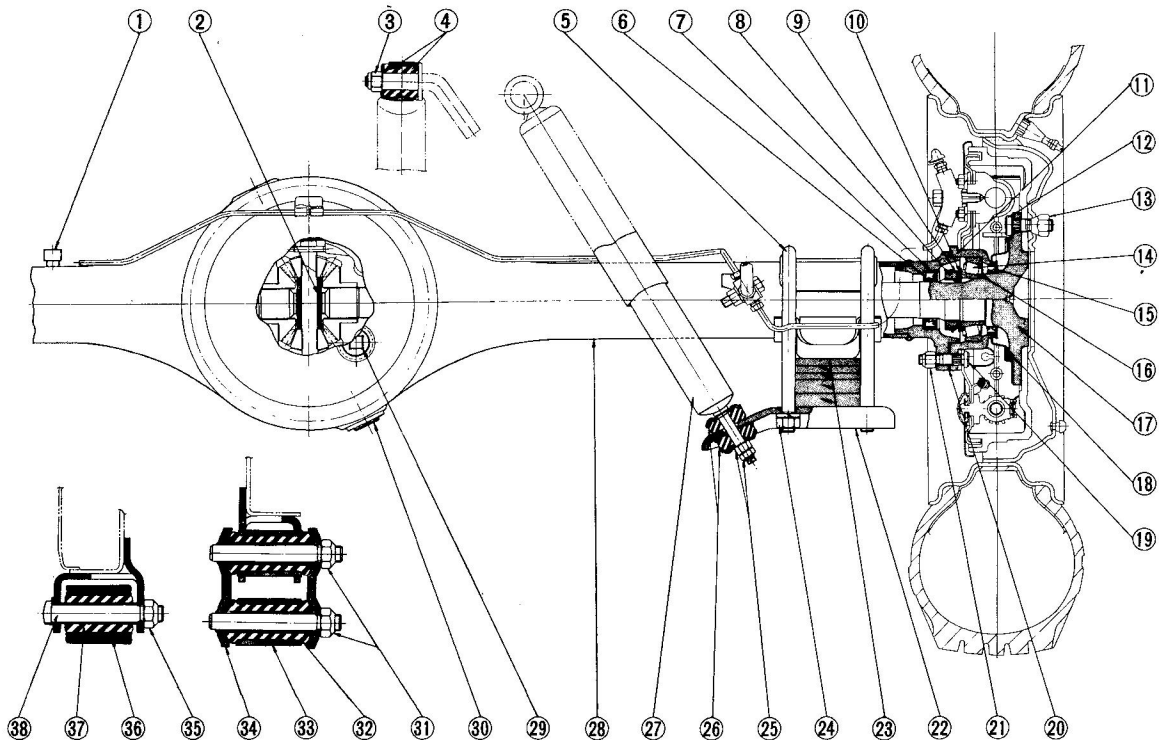
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# REAR AXLE & REAR SUSPENSION

## REAR AXLE AND REAR SUSPENSION

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RA132

- |  |  |   |
|--|--|---|
| 1 Air breather   | 14 Wheel bearing   | 28 Rear axle case   |
| 2 Thrust block   | 15 Rear axle bearing grease seal.<br>Supply wheel bearing grease to<br>oil seal lip when assembly. | 29 Filler plug<br>T = 6 to 10 kg-m<br>(43.4 to 72.3 ft-lb)<br>Oil capacity (about) = 1.0 liter<br>(1 US qt., 7/8 Imp.qt.) |
| 3 Nut<br>T = 3.1 to 4.1 kg-m<br>(22.4 to 29.6 ft-lb)   | 16 Rear axle bearing spacer  | 30 Drain plug<br>T = 6 to 10 kg-m<br>(43.4 to 72.3 ft-lb)   |
| 4 Shock absorber mounting rubber<br>bush   | 17 Rear axle shaft   | 31 Nut<br>T = 11.5 to 13.0 kg-m<br>(83.2 to 94.0 ft-lb)   |
| 5 Rear spring clip (U-bolt)  | 18 Grease catcher  | 32 Rear spring rear bush  |
| 6 Rear axle oil seal spacer  | 19 Bearing cage bolt   | 33 Rear spring  |
| 7 Rear axle shaft oil seal.<br>Supply wheel bearing grease to<br>oil seal lip when assembly. | 20 Rear axle case end shim   | 34 Rear spring shackle  |
| 8 Rear axle bearing lock nut<br>T = 15 to 20 kg-m<br>(108.5 to 144.6 ft-lb)                  | 21 Nut<br>T = 3.7 to 4.8 kg-m<br>(26.8 to 34.7 ft-lb)  | 35 Nut<br>T = 11.5 to 13.0 kg-m<br>(83.2 to 94.0 ft-lb)   |
| 9 Rear axle bearing lock washer  | 22 Rear spring pad   | 36 Rear spring  |
| 10 Plain washer  | 23 Rear spring   | 37 Rear spring front bush   |
| 11 Rear axle bearing cage  | 24 Nut<br>T = 7.3 to 9.9 kg-m<br>(52.8 to 71.6 ft-lb)  | 38 Rear spring front pin  |
| 12 Road wheel bolt   | 25 Nut<br>T = 1.6 to 2.2 kg-m<br>(11.6 to 15.9 ft-lb)  |   |
| 13 Road wheel nut<br>T = 8 to 9 kg-m<br>(57.8 to 65.1 ft-lb)                                 | 26 Shock absorber rubber bush  |   |
|  | 27 Shock absorber  |   |

T: Tightening torque

Fig. RA-1 Cross-sectional view of rear axle and suspension

# REAR AXLE & REAR SUSPENSION

## DESCRIPTION

The rear axle assembly is of the semi-floating type in which the vehicle weight is carried on the axle shafts through bearings enclosed in the bearing cages on outer rear axle case. The axle case is a pressed steel "Banjo" type housing.

The rear axle assembly is attached to the frame through semi-elliptic leaf springs and telescopic hydraulic shock absorbers. Rubber bushings at either end of the leaf springs and shock absorbers are designed to absorb vibration and noise.

The rear axle shaft splines engage the differential side gears with a floating fit. The outer ends are supported in the bearing cages by tapered-roller bearings.

The bearings are lubricated by wheel bearing grease. The axle shaft oil seals are located outboard and inboard of the bearing. The bearings are secured against shoulders on the shafts by press fit, and held in place by a large nuts.

The bearing cages hold the bearings against shoulders on the axle case.

Wheel side thrust is taken at the wheel bearings through the thrust block, so an axle shaft may be removed simply by removing the bolts holding the brake disc to the bearing cage and the rear axle case.

## REMOVAL AND INSTALLATION

### Rear axle assembly

It is not necessary to remove the rear axle assembly for any normal repairs.

However, if the axle case is damaged, the rear axle assembly may be removed and installed using the following procedures.

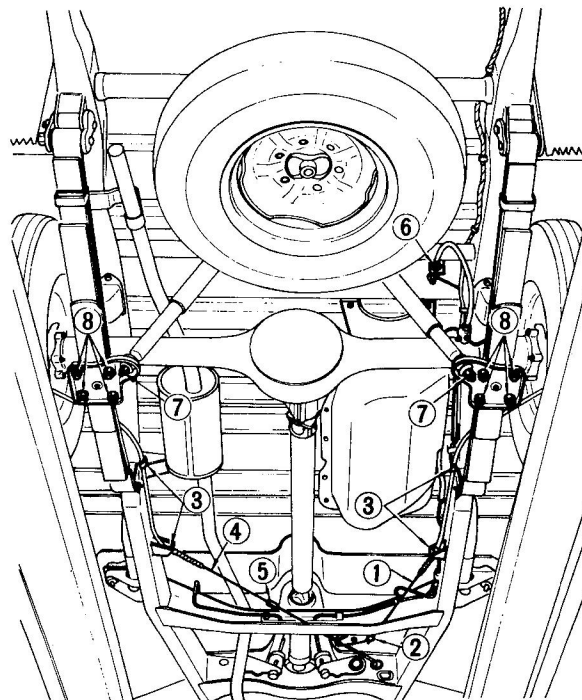
1. Raise rear of vehicle high enough to permit working underneath. Place a jack under center of axle case so it just starts to raise rear axle assembly.

Place stands solidly under frame members on both sides. Remove rear wheels.

2. Mark relationship across propeller shaft flange and companion flange of differential carrier so that the original combination is restored at assembly.
3. Remove bolts retaining center bearing bracket and connecting shaft to companion flange. Withdraw propeller shaft sleeve yoke from transmission by moving the shaft rearward, passing it under rear axle.
4. Disconnect rear hand brake cable (1) by removing adjusting nut (2) and

four clamps (3). Slide front cable rearward and disconnect rear cable (4) at connector (5).

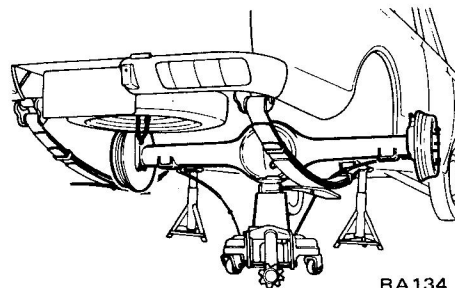
5. Disconnect rear brake hose at frame (6). Cover brake hose and pipe openings to prevent entrance of dirt.
6. Disconnect shock absorbers at lower end (7) and push shock absorbers up out of the way.
7. Lower jack under axle case. Remove U-bolts (spring clips) (8) to separate axle case from spring.



RA133

Fig. RA-2 Under view

8. Place a jack under center of axle case. Pass axle case through space above spring, and take it out to the side.



RA134

Fig. RA-3 Removing rear axle assembly

9. Install the axle case assembly in the reverse order of removal.

### Tightening torque:

#### U-bolt (Spring clip):

7.3 to 9.9 kg-m  
(52.8 to 71.6 ft-lb)

#### Shock absorber lower end nut:

1.6 to 2.2 kg-m  
(11.6 to 15.9 ft-lb)

#### Brake pipe flare nut:

1.5 to 1.8 kg-m  
(10.9 to 13.0 ft-lb)

#### Propeller shaft to companion

#### flange connecting bolt:

2.0 to 2.7 kg-m  
(14.5 to 19.5 ft-lb)

#### Center bearing bracket fixing bolt:

1.6 to 2.2 kg-m  
(11.6 to 15.9 ft-lb)

## REAR AXLE & REAR SUSPENSION

### Rear axle shaft and wheel bearing

1. Raise rear of vehicle and support under axle case on stands. Remove rear wheel.
2. Disconnect rear hand brake cable by removing adjusting nut and clamps.
3. Disconnect brake tube at rear brake disc. Cover brake tube and brake disc openings to prevent entrance of dirt.
4. Remove brake drum.
5. Remove nuts retaining wheel bearing cage to brake disc.

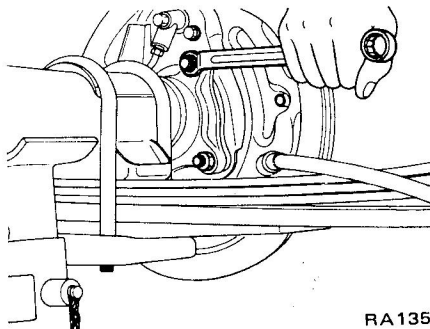


Fig. RA-4 Removing nuts

6. Pull out axle shaft assembly together with brake disc using Rear Axle Stand ST07630000 and Sliding Hammer ST36230000.

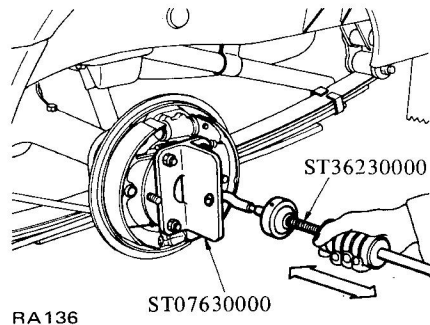


Fig. RA-5 Removing rear axle shaft assembly

7. Remove oil seal in axle case if necessary and install new seal. Insure against damaging the seal lip.
8. Position axle shaft in vise with Rear Axle Stand ST07630000.
9. Unbend lock washer with a screwdriver.

**Note:** Do not use used lock washer again.

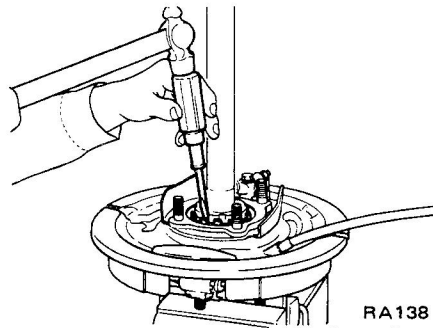


Fig. RA-6 Unbending lock washer

10. Remove lock nut using Rear Axle Bearing Lock Nut Wrench ST38020000.

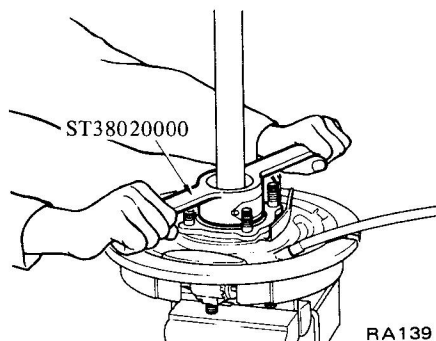


Fig. RA-7 Removing lock nut

11. Withdraw wheel bearing together with bearing cage and brake disc using Rear Axle Shaft Bearing Puller ST37140000.

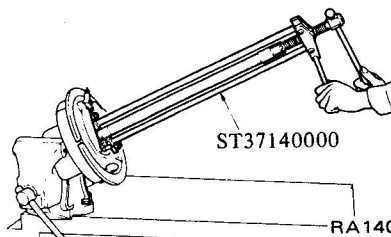


Fig. RA-8 Removing bearing

12. Remove oil seal in bearing cage if necessary.
13. To remove wheel bearing outer race after removed oil seal, apply a brass drift to race side surface, and withdraw it by tapping the top of drift with a hammer.

Installing can be proceeded in the reverse order of removal procedure as follows;

1. Fit wheel bearing outer race by tapping with a brass hammer evenly while fitting.
2. Install a new oil seal in bearing cage. Lubricate cavity between seal lips with wheel bearing grease after fitting seal.
3. Place bearing cage with brake disc and bearing spacer on axle shaft, and fit bearing cone. To install bearing cone, apply a brass drift to race side surface and tapping the top of drift with a hammer.

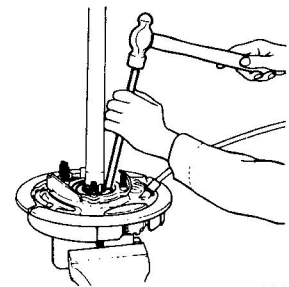


Fig. RA-9 Installing wheel bearing

4. Place bearing lock washer and bearing nut lock washer on axle shaft, and tighten lock nut using Rear Axle Bearing Lock Nut Wrench ST38020000, and bend up lock washer.

#### Notes:

- a. Be careful to place the faced side of nut to washer side so that washer is not damaged.
- b. Coincide washer lip with nut groove correctly by tightening nut, and bend washer carefully so that lip will not be damaged.

#### Tightening torque:

15 to 20 kg-m  
(108 to 145 ft-lb)

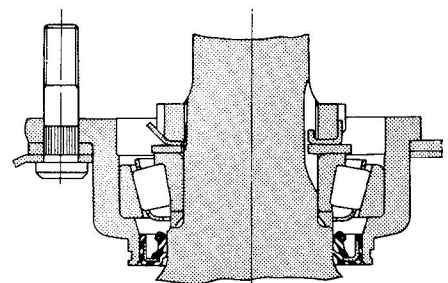
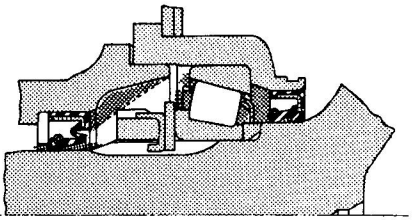


Fig. RA-10 Layout of lock nut

## REAR AXLE & REAR SUSPENSION

5. Apply wheel bearing grease in wheel bearing and recess of axle case end.



▨ : Lubricating portion

RA143

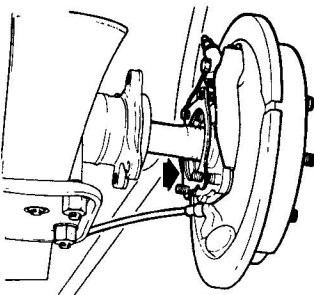
Fig. RA-11 Lubricating portion in and around wheel bearing

6. Apply gear oil to the spline at the inner end of axle shaft. Apply a coat of wheel bearing grease on the seal surface of the shaft.
7. Install left or right shaft, and adjust axial end play by applying rear axle case end shim (indicated by arrow mark).

Axial end play: 0.3 to 0.9 mm  
(0.012 to 0.035 in)

Standard shim thickness:  
1.5 mm (0.059 in)

Tightening torque of  
bearing cage fixing nut:  
3.7 to 4.8 kg-m  
(26.8 to 34.7 ft-lb)



RA144

Fig. RA-12 Installing rear axle shaft

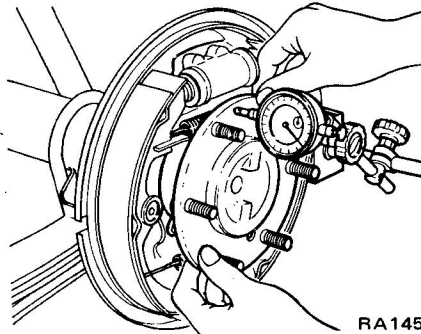
Rear axle case end shim

Thickness	mm (in)
0.05	(0.0020)
0.07	(0.0028)
0.10	(0.0039)
0.20	(0.0079)
0.50	(0.0197)

8. Install shaft in opposite side, and adjust axial end play by applying shim.

Axial end play: 0.02 to 0.15 mm  
(0.0008 to 0.0059 in)

Tightening torque of  
bearing cage fixing nut:  
3.7 to 4.8 kg-m  
(26.8 to 34.7 ft-lb)



RA145

Fig. RA-13 Measuring axial end play

9. Install other parts in reverse sequence to removal.

### Rear axle case

Rear axle case may be removed and installed using the following procedures:

1. Raise rear of vehicle and support securely under both frame members with stands.
2. Remove rear axle assembly (See removal of rear axle assembly.).
3. Remove rear axle shaft at both sides (See removal of rear axle shaft and wheel bearing.).
4. Remove differential gear carrier assembly.

Installing can be proceeded in the reverse order of removal procedure.

Another procedure is available as listed below:

1. Raise rear of vehicle and support under both frame members with stands.
2. Remove rear axle shaft at both sides.
3. Remove differential gear carrier assembly.
4. Remove rear axle case.

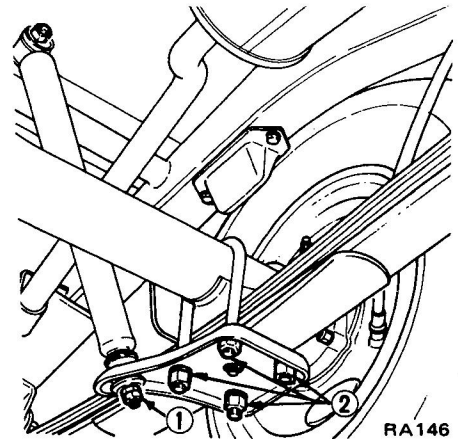
Installing can be proceeded in the reverse order of removal procedure.

Tightening torque:  
Differential carrier to axle case  
fixing nut: 1.7 to 2.5 kg-m  
(12.3 to 18.1 ft-lb)

Oil drain and filler plug:  
6 to 10 kg-m  
(43.4 to 72.3 ft-lb)

### Rear spring

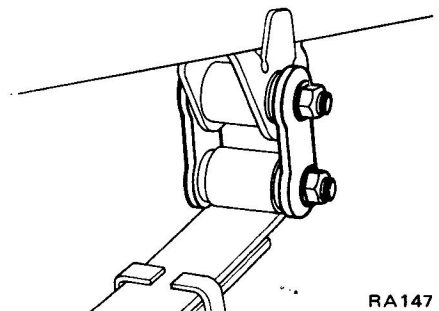
1. Raise rear of vehicle and support under both frame members with stands.
2. Disconnect shock absorber at lower end ① and remove U-bolts (Spring clips) ②.



RA146

Fig. RA-14 Removing shock absorber lower end and U-bolts

3. Position jack under rear axle case. Raise jack and float axle case from spring.
4. Disconnect rear spring shackle by removing nuts.

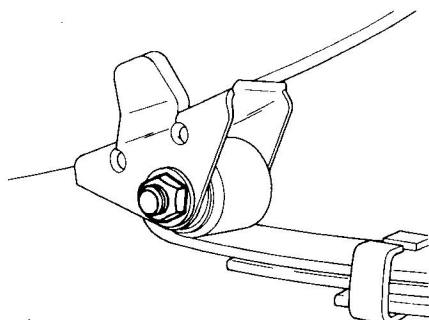


RA147

Fig. RA-15 Removing spring shackle

5. Disconnect spring from body by removing spring front pin.

## REAR AXLE & REAR SUSPENSION



RA148

*Fig. RA-16 Removing spring pin*

6. Remove rubber bush in spring if necessary and install new bush. Coat rubber bush with a soapy solution prior to assembly.

Install rear spring in the reverse order of removal, noting the following point.

Car weight must be on rear wheels when tightening front pin, shackle and shock absorber lower end nut in order to clamp rubber bush in a neutral or unloaded position.

### Tightening torque:

Spring front pin nut:  
11.5 to 13.0 kg-m  
(83.2 to 94.0 ft-lb)

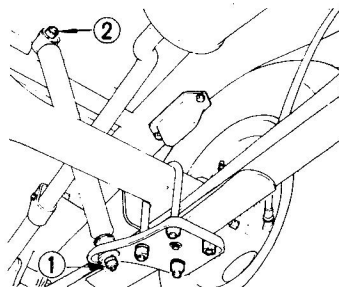
Spring shackle nut:  
11.5 to 13.0 kg-m  
(83.2 to 94.0 ft-lb)

U-bolt: 7.3 to 9.9 kg-m  
(52.8 to 71.6 ft-lb)

Shock absorber lower end nut:  
1.6 to 2.2 kg-m  
(11.6 to 15.9 ft-lb)

### Shock absorber

1. Raise rear of vehicle and support under axle case on stands. It is recommended that a hydraulic hoist or open pit be utilized if available.
2. Disconnect lower end of shock absorber by removing nuts ① at spring seat.
3. Disconnect upper end of shock absorber by removing nut ② at frame.



RA146

*Fig. RA-17 Removing shock absorber*

Installation of shock absorber in the reverse order of removal.

**Note:** Car weight must be on rear wheels when tightening shock absorber upper and lower ends in order to clamp rubber bushings in a neutral or unloaded position.

## INSPECTION

### Rear axle shaft and wheel bearing

Inspect the following parts for defects and replace as required.

1. Check axle shaft for straightness, cracks, damage, wear and distortion.
2. Check the lip of oil seal for damage, deformation and wear.
3. Check bearing for wear and damage.

### Rear axle case

Check axle case for yield, deformation or cracks and replace if necessary.

### Rear spring

Clean all rust and dirt from spring leaves, using a wire brush if necessary.

1. Examine spring leaves for fractures or cracks.
2. Check front bracket and pin, shackle, U-bolts and spring seat for wear, cracks, straightness and damaged threads. If defective parts are found, replace with new ones.
3. Inspect all rubber parts for wear, damage, separation and deformation. Replace them if necessary.

### Shock absorber

1. Test shock absorber and compare with the specifications given in Service Data and Specifications. Replace if necessary.
2. Check for oil leakage and cracks. Also, check shaft for straightness.
3. Inspect rubber bushings for damage, cracks and deformation. Replace parts if necessary.

# **REAR AXLE & REAR SUSPENSION**

## **SERVICE DATA AND SPECIFICATIONS**

Applied models		Pick-up	Double Pick-up												
Items															
Rear shock absorber															
Stroke x Maximum length	mm (in)	190 x 475 (7.48 x 18.70)	210 x 515 (8.27 x 20.28)												
Damping force at 0.3 m/sec.	kg (lb)														
Expansion		75 to 101 (165 to 223)	61 to 83 (135 to 183)												
Compression		35 to 53 (77 to 117)	16 to 26 (35 to 57)												
Rear leaf spring															
Dimension (Length x Width x Thickness - Number of leaves)	mm (in)	1,200 x 60 x 7 - 2 6 - 1 13 - 2 ( 47.2 x 2.36 x 0.28 - 2 0.24 - 1 0.51 - 2 )	1,200 x 60 x 6 - 3 5 - 1 12 - 1 ( 47.2 x 2.36 x 0.24 - 3 0.20 - 1 0.47 - 1 )												
Lader camber	mm/kg (in/lb)	-2/697.5 (-0.0787/1,538)*	-38/497.5 (-1.496/1,097)												
Spring constant	kg/mm (lb/in)	2.6 to 10.0 (145.6 to 560.0)	2.1 to 5.0 (117.6 to 280.0)												
Rear axle															
End play	mm (in)	0.02 to 0.15 (0.0008 to 0.0059)													
Rear axle case end shim		<table><tr><td>Thickness</td><td>mm (in)</td></tr><tr><td>0.05</td><td>(0.0020)</td></tr><tr><td>0.07</td><td>(0.0028)</td></tr><tr><td>0.10</td><td>(0.0039)</td></tr><tr><td>0.20</td><td>(0.0079)</td></tr><tr><td>0.50</td><td>(0.0197)</td></tr></table>		Thickness	mm (in)	0.05	(0.0020)	0.07	(0.0028)	0.10	(0.0039)	0.20	(0.0079)	0.50	(0.0197)
Thickness	mm (in)														
0.05	(0.0020)														
0.07	(0.0028)														
0.10	(0.0039)														
0.20	(0.0079)														
0.50	(0.0197)														

Tightening torque	kg-m (ft-lb)	
Shock absorber upper end nut .....	3.1 to 4.1	(22.4 to 29.6)
Shock absorber lower end nut .....	1.6 to 2.2	(11.6 to 15.9)
Rear spring U-bolt (Clip) .....	7.3 to 9.9	(52.8 to 71.6)
Spring front pin .....	11.5 to 13.0	(83.2 to 94.0)
Spring shackle .....	11.5 to 13.0	(83.2 to 94.0)
Bearing cage fixing bolt .....	3.7 to 4.8	(26.8 to 34.7)
Wheel bearing lock nut .....	15 to 20	(108.5 to 144.6)
Air breather .....	0.7 to 0.9	(5.1 to 6.5)
Differential gear carrier to axle case nut .....	1.7 to 2.7	(12.3 to 19.5)
Propeller shaft flange bolt .....	2.0 to 2.7	(14.5 to 19.5)
Drain and filler plug .....	6 to 10	(43.4 to 72.3)
Bumper rubber fixing bolt .....	1.6 to 2.2	(11.6 to 15.9)
Wheel nut .....	8 to 9	(57.8 to 65.1)

\* Long wheelbase model: -2/697 (-0.0787/1,537), For U.S.A. and Canada: 24/440 (0.945/970)



## REAR AXLE & REAR SUSPENSION

### TROUBLE DIAGNOSES AND CORRECTIONS

When rear axle and suspension is suspected of being noisy it is advisable to make a thorough test to determine whether the noise originates in the tires, road surface, exhaust, propeller

shaft, engine, transmission, universal joint, wheel bearings or suspension.

Noise which originates in other places can not be corrected by adjustment or replacement of parts in the

rear axle and rear suspension.

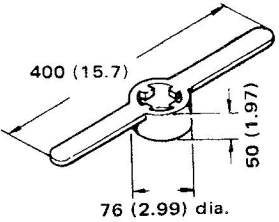
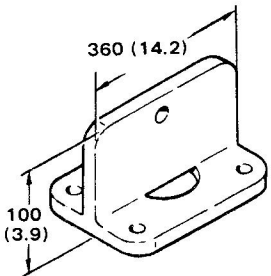
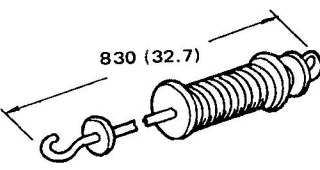
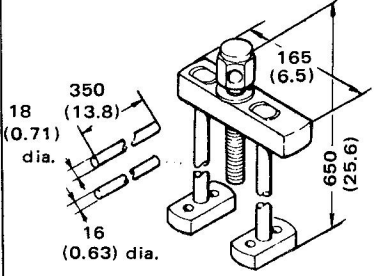
In case of oil leak, first check if there is any damage or restriction in breather.

Condition	Probable cause	Corrective action
Noise	Loose wheel nuts. Loose one or more securing bolts. Lack of lubricating oil or grease. Defective shock absorber. Incorrect adjustment of rear axle shaft end play. Damaged or worn wheel bearing. Worn spline portion of rear axle shaft. Broken leaf spring. Loose journal, connections or so no. Wheel and tire unbalance. Defective rubber parts such as leaf spring bush, shock absorber mounting bush. Defective universal joints.	Tighten the wheel nuts. Tighten the bolts to the specified torque. Lubricate as required. Replace the shock absorber. Adjust the rear axle shaft end play.  Replace wheel bearing. Replace if necessary. Replace leaf spring. Tighten to the given torque. Balance wheel and tire. Replace the required parts.  Adjust or replace.
Instability in driving	Loose wheel nuts. Worn shock absorber. Worn or broken leaf spring.	Tighten to the given torque. Replace defective shock absorber. Replace leaf spring.
Oil leakage	Damaged or restricted air breather. Damaged oil seal in rear axle case or differential carrier. Oil leakage from between the differential carrier and axle case.	Clean or replace air breather. Replace the defective oil seal.  Tighten to the specified torque, or replace gasket.



# REAR AXLE & REAR SUSPENSION

## SPECIAL SERVICE TOOLS

No.	Tool number & tool name	Description  Unit: mm (in)	For use on	Reference page or figure No.
1.	ST38020000  Bearing lock nut wrench	 <p>SE238</p>	620 521	Fig. RA-7
2.	ST07630000  Rear axle stand	 <p>SE239</p>	620 521	Fig. RA-5
3.	ST36230000  Sliding hammer	 <p>SE111</p>	All models	Fig. RA-5
4.	ST37140000  Bearing puller	 <p>SE240</p>	620 521 130	Fig. RA-8